ORIGINAL

LEVENTHAL SENTER & LERMAN PLLC

July 26, 2004

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Written *Ex Parte* Presentation in MB Docket No. 03-185

Dear Ms. Dortch:

The U.S. GPS Industry Council ("the Council") has previously filed written *ex parte* presentations in this proceeding to address the need to protect Special Bands, such as those used by the Global Positioning System (GPS), from out-of-band emissions ("OOBE") from low power television transmitter and translators ("D-LPTV") stations.[1] While the NPRM did not state a maximum absolute value for this OOBE, the Commission proposed a stringent emission mask, in addition to a simple emission mask. These proposals provide a basis for common ground to develop a commercial solution that is practical for D-LPTV transmitters and that provides protection for GPS users.

After filing written *ex parte* presentations in this proceeding, the Council entered into discussions with the National Translator Association ("NTA") and technical advisors to the D-LPTV industry[2] regarding OOBE into the GPS bands. As a result, the Council now believes that GPS will be adequately protected by focusing only on the harmonics of D-LPTV transmissions that potentially affect GPS users.

Evolution of A Public Utility

The U.S. Air Force declared the GPS system Full Operational Capability (FOC) only in 1994. At that time, the emerging applications of GPS included military, aviation, marine, survey and vehicle tracking. Today, GPS is a public utility with millions of users across a broad range of applications worldwide, including consumer, infrastructure, and public safety, as recognized by the International Telecommunication Union (ITU) in the attachment hereto.[3] The majority of GPS use today is mobile; for example, millions of mobile phones now incorporate GPS for E911.

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[1] *See* Written *Ex Parte* Presentation of F. Michael Swiek, Executive Director of the U.S. GPS Industry Council, filed on April 26, 2004 and May 20, 2004, in Notice of Proposed Rule Making in MB Docket No. 03-185, Amendment of Parts 73 and 74 of the Commission's Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations, released August 29, 2003 ("NPRM").

[2] Greg Best of Greg Best Consulting and Gary Sgrignoli of Sgrignoli Consulting have assisted in the technical discussions among the parties and in the preparation of this proposal.

[3] Excerpted from Table 2-1, Section 2.2.1.2.1, CPM Report on Technical, Operational and Regulatory-Procedural Matters To Be Considered By The 2000 World Radiocommunication Conference, ITU Radiocommunication Sector, Geneva 1999.

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Solving the Compliance Measurement Dilemma

The Council understands that the D-LPTV industry is concerned that it is technically difficult and expensive to measure actual regulatory compliance in the field with the attenuation originally proposed by the Council, especially if a single absolute value would be explicitly stated in the rules. For this reason, the transition to digital transmissions and the adoption of either the simple or stringent filter proposed by the FCC in the NPRM affords D-LPTV licensees the opportunity to provide *operational* protection to GPS uses, including mobile. Thus, in order to avoid the pitfall of including a single absolute value for an OOBE limit in the GPS bands in regulatory language and also avoid the burden of measuring regulatory compliance in the field, the Council proposes the additional attenuation (via filtering) of D-LPTV transmitters to operationally accomplish the needed OOBE protection to GPS.

This operational solution is offered in the "Supplemental Engineering Field Study" filed in the NPRM proceeding by Mr. R. Kent Parsons of the State of Utah TV Translator Coordinator.[4] This study concludes that, "... **an additional low-pass filter would further insure no interference to any GPS reception would occur**." *Field Study* at 4. The study observes that "[t]he low-pass filter can be installed within a new filter or added externally. In many instances, older, existing equipment can be used with the addition of an external low-pass filter...." *Id.* The *Field Study* confirms that a low-pass filter is a low cost item and readily available for as little as $275.

The Council supports these findings. In fact, the Council's original comments included a similar cost quote based on a complete engineering design from a digital filter manufacturer for additional filtering. To protect GPS uses today, including mobile, the Council proposes a filter attenuation specification of 85 dB in the bands from 1164 to 1610 MHz for only those transmitters with harmonics that fall in this frequency range.[5] Focusing solely on harmonics, we recognize that power in the second and third harmonics are at least 25 dB below carrier power. Consequently, we modified the attenuation specification included in our original comments to reflect this knowledge.

The vast majority of D-LPTV transmitters and translators do not produce harmonic content in this frequency range and consequently will not affect GPS. The only D-LPTV television stations that are capable of generating low order harmonics in the GPS band are channels 22-24, 32-34, 36-38, and 65-69 and thus are the only transmission channels of concern here. (Although licenses are not currently granted for channels 37, and 65-69, they are included here for completeness.)

[4] Supplemental Engineering Field Study Comments filed in MB Docket No. 03-185, May 8, 2004 ("Field Study").
[5] *See* U.S. GPS Industry Council Ex Parte Presentation filed in MB Docket No. 03-185, May 20, 2004.

Proposed Regulatory Language

The Council proposes the Commission adopt the following text in its D-LPTV rules:

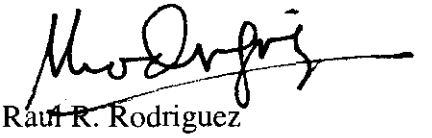
> In addition to the harmonic limits set by the emission mask, specific "Out Of Band" protection must be provided in the frequency ranges corresponding to the GPS Bands: L5 (1164 -1215 MHz); L2 (1215 -1240 MHz) and L1 (1559 - 1610 MHz). This special requirement applies specifically to digital LPTV and translator stations operating on channels 22 - 24, 36 - 38, and 65 - 69.
>
> 1) A type certified transmitter specifically certified for use on one or more of the above channels must include output filtering with an attenuation of 85 dB below the passband and this attenuation must be demonstrated as part of the certification application.
>
> 2) For an installation on one of the above channels with a digital transmitter not specifically type certified for the channel a low pass filter or equivalent device rated by its manufacturer to have an attenuation of at least 85 dB below the passband of the operating channel must be installed in a manner that will prevent the harmonic content from reaching the antenna. A description of the low pass filter or equivalent device with the manufacturer's rating or a report of measurements by a qualified individual shall be retained with the station license. Field measurements of the second or third harmonic output of a transmitter so equipped are not required.

Conclusion

For the reasons set out above and in earlier written presentations, the Council urges the Commission to adopt this proposed regulatory text in its D-LPTV rules to protect hundreds of thousand of GPS receivers and applications from OOBE from D-LPTV stations.

Please address any questions you may have to the undersigned.

Respectfully submitted,



Raul R. Rodriguez
Counsel to the U.S. GPS Industry Council

Attachment

cc via e-mail: Mr. Byron St. Clair (NTA)
Mr. Greg Best
Mr. Gary Sgrignoli
Mr. R. Kent Parsons

ATTACHMENT
Examples of Uses of RNSS

AGRICULTURE and FORESTRY
Forest area and timber estimates.
Identifying species habitats.
Fire perimeters.
Water resources.
Locating property boundaries.
Ploughing, planting and fertilizing without operators.

AVIATION
Oceanic and en route navigation.
Non-precision and precision all-weather approaches.
Direct routing of aircraft for fuel savings.
Improved aircraft separation standards for more efficient air traffic management.
Airport surface traffic management.
Monitor wing deflections in flight.
Wind shear detection.
Precise airfield and landing aid locations.
Seamless (global) air space management.
Less expensive avionics equipment.
Monitoring aircraft locations in flight.
Precision departures.
Missed approach applications
Enhanced ground proximity warning system.
Automatic dependent surveillance.

ELECTRIC POWER
Synchronization of power levels.
Event location.

EMERGENCY RESPONSE
Ambulance, police, and fire department dispatch.
Road service locating disabled vehicles.

ENVIRONMENTAL PROTECTION
Hazardous waste site investigation.
Ground mapping of ecosystems.
Oil spill tracking and cleanup.
Precise location of stored hazardous materials.

HIGHWAY and CONSTRUCTION
Intelligent vehicle-highway system operation.
Highway facility inventory and maintenance.
Accident location studies.
Highway construction.
Navigation for motor vehicle drivers.
Truck fleet on-the-road management.
Monitoring status of bridges.

LAW ENFORCEMENT and LEGAL SERVICES
Tracking and recovering stolen vehicles.
Tracking narcotics and contraband movements.
Maintaining security of high government officials and dignitaries while travelling.
Border surveillance.
Measuring and recording property boundaries.
Tort claim evidence in aviation and maritime accidents.

MARITIME and WATERWAYS
Navigation on the high seas.
Search and rescue.
All weather harbour approach navigation.
Vessel traffic services.
Dredging of harbours and waterways.
Positioning of buoys and marine navigation aids.
Navigation for recreational vessels.
Location of commercial fishing traps and gear.
Offshore drilling research.
Monitoring deflections in dams as a result of hydrostatic and thermal stress changes.
Ice breaking and monitoring icebergs and flows.
Observing tides and currents.
Harbour facility management.
Location of containers in marine terminals.

PUBLIC TRANSPORTATION
Bus fleet on-the-road management.
Passenger and operator security monitoring.

RAILROAD
Railroad fleet monitoring.
Train control and collision avoidance.
Facility inventory control and management.

RECREATION
Hiking and mountain climbing.
Measuring at sports events.
Setting lines on sports fields.

SURVEYING
Electronic bench marker providing absolute reference of latitude, longitude and altitude.
High precision surveys in minutes by anyone.
Real-time dam deformation monitoring.
Hydrographic surveying.
Efficient and accurate photo surveys.
Measuring areas without triangulation.
Oil and mineral prospecting.
National spatial data infrastructure.

TELECOMMUNICATIONS
Precise timing for interlacing messages/network synchronization.

WEATHER, SCIENTIFIC and SPACE
Use as weather balloon position radiosonde.
Measurement of sea level from satellites.
Navigating and controlling space shuttles.
Placing satellites into orbit.
Monitoring earthquakes and tectonic plates.
Measuring ground subsidence (sinking).
Measuring atmospheric humidity from ground.
Precise global mapping of ionosphere.